OPEN ACCESS

KING'S College LONDON

King's Research Portal

Link to publication record in King's Research Portal

Citation for published version (APA):
Rothstein, H. F., Beaussier, A-L. M. V., Borraz, O., Bouder, F., Demeritt, D. B., de Haan, M., Huber, M., Paul, R., & Wesseling, M. (2015). *When 'Must' Means 'Maybe': Varieties of Risk Regulation and the Problem of Trade-offs in Europe. HowSAFE Working Paper, No. 1*.
http://www.kcl.ac.uk/sspp/departments/geography/research/Research-Domains/Risk-and-Society/projects/howsafe/Rothstein-et-al-2015-Varieties-of-Risk-Regulation-HowSAFE-WP1.pdf

Citing this paper
Please note that where the full-text provided on King's Research Portal is the Author Accepted Manuscript or Post-Print version this may differ from the final Published version. If citing, it is advised that you check and use the publisher's definitive version for pagination, volume/issue, and date of publication details. And where the final published version is provided on the Research Portal, if citing you are again advised to check the publisher's website for any subsequent corrections.

General rights
Copyright and moral rights for the publications made accessible in the Research Portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognize and abide by the legal requirements associated with these rights.

•Users may download and print one copy of any publication from the Research Portal for the purpose of private study or research.
•You may not further distribute the material or use it for any profit-making activity or commercial gain
•You may freely distribute the URL identifying the publication in the Research Portal

Take down policy
If you believe that this document breaches copyright please contact librarypure@kcl.ac.uk providing details, and we will remove access to the work immediately and investigate your claim.

Download date: 05. May. 2023

When 'Must' Means 'Maybe': Varieties of Risk Regulation and the Problem of Trade-offs in Europe

Henry Rothstein*[1], Anne-Laure Beaussier[1], Olivier Borraz[2], Frederic Bouder[3], David Demeritt[1], Maarten de Haan[3], Michael Huber[4], Regine Paul[4], Mara Wesseling[2]

*Corresponding Author: henry.rothstein@kcl.ac.uk

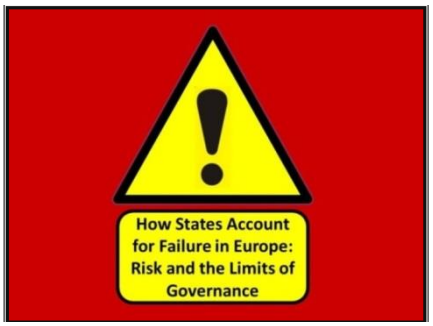
[1] King's College London, Department of Geography, Strand, London, WC2R 2LS. UNITED KINGDOM.

[2] Centre de Sociologie des Organisations (CSO), Sciences Po-CNRS, 19 rue Amélie, 75007 Paris. FRANCE.

[3] Department of Technology and Society Studies, University of Maastricht, Grote Gracht 90-92, 6211 SZ Maastricht. THE NETHERLANDS

[4] Law & Society Unit, Department of Sociology, Bielefeld University, Postbox 10 01 31, D-33501, Bielefeld. GERMANY

HowSAFE Working Paper, No. 1
2015



Research for this Working Paper was supported by a grant awarded through the Open Research Area Programme for the Social Sciences jointly funded by the ESRC (ES/K006169/1), DFG, ANR, and NOW (http://tinyurl.com/howsafe-project).

Abstract

This paper explains how the inevitable trade-offs between risk and cost in occupational health and safety (OHS) regulation are managed across EU member states. While trade-offs are explicitly sanctioned in UK law, many continental countries mandate ambitious goals of safety. This contrast in statutory goals appears to reflect cleavages identified in the risk regulation literature between European precaution and Anglo-Saxon neoliberal risk-taking, as well as in the Varieties of Capitalism literature which suggests workers are better protected in co-ordinated than in liberal market economies. However, we challenge those claims through a detailed analysis of OHS regimes in the UK, Netherlands, Germany and France, which shows that a narrow focus on headline regulatory goals misses how each country makes cost-benefit trade-offs on safety. In particular, we show how the nature and outcome of those trade-offs substantially vary according to the degree of coupling between regulation and welfare regimes, and to national traditions of common and civil law. As such, we offer a novel explanation for risk regulation and governance variety that emphasises deep institutional differences among welfare states in the organization of the political economy and their philosophies of regulation.

1. Introduction

In 2007, the UK finally won a protracted battle with the European Commission (EC) over its explicit framing of occupational health and safety (OHS) regulation as a trade-off between safety and cost (C-127/05, Commission v. UK [2007] ECR I-4619). The controversy began a decade earlier when the EC referred the UK to the European Court of Justice, alleging that UK law compromised the goal of European OHS regulation by stipulating that workers should only be protected against harm 'so far as is reasonably practicable'. The EC argued that this qualification was inconsistent with the Framework Directive's (89/391/EEC) requirement to "ensure the safety and health of workers in every aspect related to the work". Other EU member states had transposed the Directive in ways that emphasised the reduction of workplace risks to the minimum possible, and so should the UK. The UK argued, however, that given it was "impossible to eliminate all [workplace] risks" (HSE 1989, 17), it was better to ensure that the cost, time and effort required to reduce risk was not grossly disproportionate to the benefit gained.

This conflict over trade-offs between cost and safety speaks to important debates about risk regulation and varieties of capitalism in Europe. On the one hand, many- often US-based-commentators have identified an increasing European proclivity for precautionary risk regulation that inhibits growth (e.g.Sunstein 2005). Yet since ensuring workplace safety inevitably carries costs, it is puzzling how other EU-member states can comply with the Directive's goal of safety without reducing their competitiveness *vis-à-vis* the UK. On the other hand, critics of Anglo-Saxon neoliberalism often decry the turn to risk-based rationales as deregulatory assaults on public protections (e.g.Dodds 2006). That argument is consistent with the Varieties of Capitalism literature, which suggests that liberal market economies offer weaker protections to workers than the coordinated market economies of continental Europe (Mares 2001). However, far from having their safety compromised by the UK's risk-based approach, the latest Eurostat (2014) data suggest

that UK workers enjoy levels of safety comparable to other EU-member states. Indeed, while injury and illness statistics should be treated with caution, it is notable that UK fatal injury rates (0.58/100,000) are lower than in the coordinated- and state-market economies of Germany (0.89) and France (2.36) where the legal requirement for safety is unqualified.

These puzzles suggest that contemporary regulatory debates may overlook important differences within the EU in how member states think about and manage risk. In this article, therefore, we use the case of OHS regulation to compare how regulatory goals in the UK, Netherlands, Germany and France are reconciled with the inevitable trade-offs between the risks to worker safety and the cost of protection. Drawing on material from an international research project, we challenge contemporary explanations of national regulatory variety, highlighting the importance of legal traditions, regulatory norms and practices, and even the design of welfare states in shaping risk regulation regimes.

2. Why risk regulation might vary across Europe

In qualifying the goal of OHS regulation with the 'so far as is reasonably practicable' (SFAIRP) principle, the UK has adopted an explicitly risk-based approach that has become increasingly central to regulatory reform programmes around the world (Rothstein *et al* 2006). Proponents of risk-based regulation insist that trying to prevent all adverse regulatory outcomes, however unlikely or small, is disproportionately costly to achieve and can perversely create other risks, or distract attention from more serious problems (Breyer 1993; Graham 2010). Instead, they argue that it is more rational, efficient and socially optimal to calibrate regulatory efforts in proportion to risk, as judged by both the probability and the consequence of harm occurring (Baldwin and Black 2010). One hypothetical example might be repairing railway lines, where maximum possible safety could be achieved by costly closures of the whole line during maintenance, but it might be more reasonably practicable to keep the trains running by using warning signals and posting lookouts.

The universalizing promise of such risk calculus suggests the potential for convergence in the framing of regulatory goals across policy domains and national contexts. Certainly, risk-based approaches have become commonplace across Anglo-Saxon countries and in a wide range of policy domains, having strong proponents in a variety of powerful national and supranational organisations, such as the OMB, WTO and OECD (OECD 2010). Even the EU is now promoting risk-based approaches to policy formation and implementation in domains such as food-safety and flood risk management.

There are, however, at least three reasons to expect unevenness in the adoption of risk-based regulation. First, some commentators argue that national policy stances will vary depending on the strength and configuration of economic interests. For example, countries may advocate risk-based approaches to open-up foreign markets to exports, but likewise resist them to protect domestic producers from imports (Vogel 1995). Lofstedt (2013), for example, has pointed to how Sweden can afford a strict phase-out policy on chemicals because of its small chemicals sector, but would be unlikely to champion strict controls on forest-products. As the European Parliament has

gained more power within the EU, so this additional veto point has amplified the significance of such national positions in EU policy-making.

Second, pioneering research on environmental regulation in the 1980s pointed to the importance of national institutional settings in shaping risk regulation (e.g.Kelman 1981). Most notably, Brickman *et al* (1985) showed how quantitative risk analysis emerged in the US as a defensive rationale for legitimating decision-making in the context of highly adversarial regulatory processes, but that risk ideas were less necessary in the more closed, cooperative and informal regulatory settings of European polities. More recent comparative research has focused on contrasting US-EU approaches to precaution (Vogel 2011; Weiner *et al* 2010), but that has done little to illuminate differences among EU member-states.

Rothstein *et al* (2013), however, have recently suggested that variation in governance norms and accountability structures across EU member states may create unevenness in the uptake of risk tools. They note that while the UK has enthusiastically adopted risk-based rationales for regulatory action in the face of increasing accountability demands on regulators, such rationales can conflict with other expectations of state action. In Germany, for example, the constitutional principle of *Schutzpflicht* constrains state intervention in the absence of identifiable 'dangers', while in France constitutional demands for solidarity and equality potentially conflict with the discrimination demanded by risk-based prioritization.

A third perspective on differences amongst EU member states is provided by the Varieties of Capitalism (VoC) literature (e.g.Hall and Soskice 2001). Its focus on variations in the organization of national political economies suggests different fault lines over risk regulation than the familiar transatlantic comparisons of precaution. Although VoC has had little to say about risk regulation, its focus on nationally specific institutional settings that complement the development of different models of capitalism points to features such as welfare and corporatist bargaining arrangements that might help explain variety in OHS regulation across Europe.

Mares (2001, Ch.4), for example, has argued that coordinated and state market economies (CMEs/SMEs) such as Germany, Netherlands and France support strong labour regulation and generous welfare regimes as a way of protecting investments by employers and employees in developing the firm- and industry- specific skills characteristic of those economies. Risk-based regulatory approaches limiting worker protection might seem antagonistic to such contexts. By contrast, such risk-based balances might be more acceptable in liberal market economies (LMEs) such as the UK, where weaker labour regulation and welfare provision are argued to complement more flexible labour markets in which workers and employers are less committed to sustaining long-term employment relationships. Certainly a number of OHS commentators have pointed to the use of risk rhetoric as cover for deregulation and ever diminishing protection for workers, be it reduced numbers of inspections or lessened compensation for accidents (Tombs and Whyte 2013).

Others, however, suggest that variations in regulation and welfare provision observed across market economies may be related to legal traditions that predate capitalism. Botero *et al* (2004), for example, have argued that common law countries are likely to have less protective labour regulation and less generous welfare regimes than civil law countries because of the greater

emphasis on freedom of contract and the greater role of markets in providing insurance in the former countries compared to the latter (see also Ahlering and Deakin 2007).

In order to explore the extent to which such arguments can explain different attitudes towards risk-based regulation across Europe, we now compare whether and how the goals of OHS regulation are reconciled with the inevitable trade-offs between workplace safety and cost in the UK, Netherlands, France and Germany. OHS offers an attractive case-study because it is a non-traded cross-sectoral issue so that any observed differences in headline regulatory goals would be hard to explain in terms of trade-protectionism. Moreover, our chosen countries are all advanced industrialised EU member states, so that any differences in regulatory design cannot be attributed to economic structure or state capacities. However, as an issue that is centrally concerned with the political economy of labour relations, OHS regulation might be expected to follow VoC predictions about the varying strength of labour protection across Europe. Our countries have therefore been chosen to reflect differences between co-ordinated, state and liberal market economies as well as those between common and civil law traditions. Our analysis combines desk-based documentary review with an extensive programme of in-depth interviews, and later cross-checking of factual descriptions in this article, with key regulatory officials, practitioner, business and labour stakeholders in all four countries.

3. The Evolution of Modern European OHS Regimes

The cost of workplace accidents is not a new concern. Legal codes in ancient Greece, Rome and China provided precise schedules to compensate for lost limbs and other injuries (Guyton 1999), while the Law of Æthelberht, the oldest surviving English law code, was also concerned largely with compensation. Strictly defined *ex post* compensation regimes disappeared under feudalism, so as the industrial revolution dawned, workplace safety was largely managed at the discretion of employers. Tort suits were costly and difficult to win, not least because the law limited employer liability on the presumption that the potential for workplace accidents was anticipated in wages negotiated by workers. Indeed, in the UK, colourfully termed 'right to die contracts' explicitly excluded the possibility of civil litigation (Hennock, 2007).

Pressure for reform mounted during the 19th century. Employers became anxious about the increasing success of civil actions, organised labour started to protest and, in Germany, the army was even concerned about the impact of poor labour conditions on their young conscripts. In that context, governments across Europe (and indeed North America [cf Lubove 1986]) established the first regulatory regimes to reduce accidents and illness amongst workers, as well as social insurance regimes to cover the income, welfare and medical costs of work-related injuries, illness and death. A complex set of varying institutional arrangements and practices subsequently emerged across our four countries, as outlined below.

Germany

Germany takes a 'dual system' approach to OHS, combining largely enabling statutory regulation with an interventionist social insurance regime. The modern regulatory regime dates back to the

1891 Industrial Code, which generalised a Prussian decree of 1839 to the rest of the German Empire by setting out employers' obligations to safeguard workers against dangers to life and health, 'insofar as permitted by the nature of the business'. These general requirements were not, however, judiciable; rather their purpose was to provide a legal basis for state intervention by newly established inspectorates (Hennock 2007 p131). Indeed, there was little enforceable general OHS law until the 1996 Occupational Safety Law, which, in transposing the EU Directive (89/391/EEC), mandated that the 'endangering of life and physical as well as psychological health [should be] avoided if possible and the remaining endangerment should be reduced to a minimum'. A number of federal ordinances have since been issued under the 1996 Law, for example, on hazardous substances (Paul and Huber 2015), but with the exception of transposing EU rules, the State has overwhelmingly refrained from setting out the precise criteria for legal compliance, having delegated this task to the social insurance regime at the end of the nineteenth century.

The social insurance regime was established by the 1884 Industrial Insurance Act, which effectively reinvented the strictly defined compensation regimes of antiquity. The Act abolished the civil liability of employers in favour of a strict no-fault liability scheme of tabulated compensation for all income and medical costs of work-related injuries, illness and death. The scheme is administered by the *Berufsgenossenschaften* (BGs): a set of powerful regional and sectoral mutual trade associations established in law under the Social Code and governed jointly by both employers and employees. The BGs are corporatist self-regulatory organisations that typify the German model of *coordinating*, rather than directing, the economy. Funded through compulsory contributions by employers, the BGs set premiums based on, *inter alia*, the riskiness of the sector, individual firms' accident rates and the associated costs to the BGs. It is the BGs that flesh out the vast majority of compliance criteria through a complex mass of detailed, sectorally-specific and often legally-binding 'accident prevention rules', technical standards and guidance.

These twin pillars of the German regime are enforced by the Länder Labour Inspectorates as well as by the BGs' own technical inspectorates. First established in 1853, today's Länder Labour Inspectorates serve a specialist policing function. Acting largely under administrative law, they draw on BG accident prevention rules, standards and guidance to assess regulatory compliance and deploy a conventional enforcement pyramid of escalating sanctions in proportion to the risks posed by violations. By contrast, the BGs' technical inspectorates play more of an advisory role to facilitate employer compliance with BG rules. They can also prosecute under administrative law, however, and have the power to recommend premium increases.

France

France also has a dual system for preventing and compensating workplace injuries and illness but, in keeping with France's dirigiste tradition, statutory regulation plays a much greater role than in Germany. France's statutory regime dates back to the 1893 Industrial Establishments Act, which created a general obligation for all employers to provide 'clean and safe working conditions' for their workers. As in Germany, this broad goal of safety was not itself justiciable until the 1980s (Chaumette 1992, pp19/25). Instead, the goal was fleshed out through an ever accumulating mass

of detailed and inflexible regulations in the statutory Labour Code. As Chaumette (1992, p35) has noted, neither employers nor courts 'have any discretion whatsoever as to the cost, utility, technical difficulty or efficiency of safety measures'. The Code is overseen by the Ministry of Labour and enforced by its regionally-based Labour Inspectorate (DIRECCTE), using a conventional pyramid of sanctions in response to non-compliance.

The social insurance regime in France, as in Germany, plays an important role in preventing accidents and ill-health. The regime was created by the 1898 Workmen's Compensation Act, which replaced the civil liability of employers with a no-fault liability approach that compensated workers for lost income and medical costs from work-related injuries, illness and death. Compensation is administered by the *Caisses*; a set of powerful national, regional and sectoral mutual associations funded by mandatory employer contributions and governed by the social partners. Premiums reflect what is known as the 'cost of risk', calculated actuarially from detailed historical data on compensation costs for the sector and/or particular businesses (HSE 1996, Ch.2, p66). The regime was absorbed into the social security system in 1946, but it still acts through the *Caisses*.

Like the German BGs, the *Caisses* also issue technically detailed 'accident prevention' rules, but which are principally advisory in nature. Companies are assisted in implementing these rules by the *Caisses'* own dedicated corps of engineers and technicians, which can even subsidise improvements in the workplace. While lacking statutory powers, this quasi-inspectorate can nevertheless 'invite' companies to take preventative action under threat of premium increases, issue 'improvement notices' to follow accident prevention rules, or notify the labour inspectorate of legal contraventions.

UK

In contrast to the dual systems of Germany and France, the UK relies solely on statutory regulation to control injuries and sickness amongst workers (Baldwin 1992; Demeritt *et al* 2015). The regulatory regime was founded on the 19th century Factory Acts, which by the 1960s had evolved into a hugely complex patchwork of highly prescriptive and inflexible safety 'standards' providing inconsistent levels of protection across sectors. The Health and Safety at Work etc. Act 1974 (HSWA), however, fundamentally transformed the regulatory regime by introducing a more flexible 'principles-based' approach. Under the HSWA, employers must ensure, *so far as is reasonably practicable* (SFAIRP), the safety, health and welfare of employees, whether or not anyone has been hurt. This risk-based principle requires that employers take all physically and technically possible measures until the cost, time and effort of doing more is grossly disproportionate to both the likelihood and the consequence of the harm occurring. Enforcement responsibilities for low- and high-risk workplaces are mostly divided between expert inspectors employed by local authorities (LAs) and the Health and Safety Executive (HSE), which is a dedicated national regulatory agency created under the HSWA. Those inspectors have traditionally been able to draw on their expertise to offer advice, but they also have recourse to a pyramid of enforcement sanctions, such as administrative improvement and prohibition notices, which are ultimately enforceable through criminal prosecution.

Unlike Germany and France, compensation arrangements to cover the lost income and medical costs of work-related accidents and sickness have played no role in shaping OHS regulation and enforcement. In 1897, the Workers' Compensation Act established a no-fault liability regime, funded through employers' non-statutory private insurance arrangements, to pay for work-related accident and sickness costs for a range of industries. The regime was extended to all workplaces in 1911 by a National Insurance scheme which was administered by state 'approved' mutual associations and jointly funded by state and mandatory employer and employee contributions without regard to the riskiness of individual workplaces. After WWII, the regime was effectively 'nationalised' through the Beveridge reforms with injury costs socialised through taxpayer-funded social security benefits and the new National Health Service (NHS). Employees still have the right to sue for damages but only if employers' negligence can be proven and the state deducts medical costs and social security benefits from successful awards.

Netherlands

As in the UK, the Netherlands principally relies on statutory regulation to control occupational injuries and sickness (de Gier 1992; Popma *et al* 2002). That regulatory regime was founded on the 1895 Safety at Work Act, which initially applied to only a limited number of sectors. Over the next century, however, the regime was broadened to cover all sectors through a complex mixture of statutory decrees, regulations, codes and guidance, which prescribed in great detail how employers should protect their employees from harms in specific contexts. In the spirit of the UK's HSWA, the Dutch sought to create a more proportionate regulatory environment with the 1980 Working Environment Act (WEA), which qualified the general duty of employers to 'aim for maximum possible safety' with the proviso 'as far as can reasonably be required'. While that qualification superficially resembled the UK's approach, the WEA retained the pre-existing mass of statutory regulations. Dutch regulators have since sought to replace those absolute duties with non-statutory 'Labour Catalogues' providing sectorally-specific advice on meeting regulatory obligations. Though non-statutory, the Labour Catalogues have strong evidential force for the courts and for the Labour Inspectorate (SWZ), which is responsible for OHS enforcement. Now part of the Ministry of Social Affairs and Employment, the SWZ was established in 1919, making it the first dedicated national inspectorate in the Netherlands.

As in Britain, the Dutch social insurance regime for covering the income and medical costs of work-related accidents and sickness plays no role in prevention. The 1901 Work Accidents Act prohibited civil litigation (revised since) in favour of a disability benefits system funded through non-statutory employer contributions to a set of mutual insurance associations- the *Bedrijfsverenigingen*- jointly controlled by employer associations and trade unions. Initially the regime covered only a small number of hazardous industries, but by the second half of the century the *Bedrijfs'* had expanded to provide disability benefits for all sectors. Rather like the UK, the expanded regime was funded through a combination of mandatory employer and employee contributions, which were based on employee numbers and salaries rather than on the riskiness of the workplace. The *Bedrijfs'* were incorporated into the Social Security Agency (UWV) twenty years ago, but in an attempt to stem the increasing number of workers on disability benefit,

employers are now required to fund benefits for the first two years. The medical costs of work-related injuries, however, are entirely decoupled from OHS regulation, since they are met by mandatory individual health insurance.

4. Explaining Variety

As these brief country overviews show, the OHS Framework Directive was transposed upon national OHS regimes with diverse and deeply embedded structures and principles. In France and Germany, for example, OHS statutes emphasise the reduction of risks to a minimum possible, whereas in the UK and Netherlands the goal of safety is qualified- at least in principle- by cost considerations. While France, Germany and the Netherlands flesh out their regulatory goals through a complex mass of highly prescriptive sector-specific rules, the UK replaced prescription with a more flexible 'principles-based' approach forty years ago. And while the social insurance regimes of France and Germany play an active role in accident prevention, the UK and the Netherlands rely solely on regulation. As a consequence of those varied institutional settings, our four countries have faced different problems in reconciling the Directive's ambitious goal of safety with the costs of achieving it. In the following section, we show how those trade-offs have been accommodated in three distinct ways.

Rules and the qualification of safety in different legal traditions

The first way in which the trade-offs at stake in OHS have been accommodated reflects the contrasting legal traditions of the UK and the other three countries. British common law places great weight on judicial interpretation of the law; the consistency of that interpretation being ensured by constraining judges to interpret statutes according to their literal or plain meaning (albeit with limited scope to avoid absurd or cruel results), and by demanding consistency with the precedential decisions (the 'common law') of higher courts. In that context, the courts have interpreted the SFAIRP principle by drawing on mining case-law from the 1940s, which concerned a miner who had been killed by a collapsed mine roadway (Edwards v. National Coal Board (NCB), [1949] 1 All ER 743). In that case the Court of Appeal ruled that "'reasonably practicable' is a narrower term than 'physically possible'" and that it would have been unreasonable to expect the NCB to shore up all roadways, since the cost and effort required to reduce risk should not be in "gross disproportion" to the benefit gained.

That common law tradition helps explain why the UK fought so hard to succeed at the ECJ insofar as SFAIRP was an essential part of 1974 HSWA. Without that qualification, the HSE argued that legal literalism would make- more or less- every workplace in breach of the law since it would be impossible to "ensure" the health and safety of workers as the Directive demanded (HSE 1989 p17). It is conceivable that in the face of such an absurd situation the courts might have responded by exercising interpretative discretion to restore proportionality to the law, but that would have been controversial if Parliament had actively removed the principle when transposing the Directive.

By contrast, civil law systems, such as found in the Netherlands, Germany and France, assert the primacy of the legislature over the judiciary. Under separation of powers doctrines judges are merely expected to mechanically implement the law, which in principle should be sufficiently complete, coherent and clear so as not to demand interpretation (Merryman 1985,p29). In practice, since legislatures are rarely able to anticipate all cases that could come before the courts, statutes tend to take the form of general legal frameworks for which, as the HSE (1989 p15) has pointed out, "literal interpretation is not expected". As Huber (2009 p15) has observed, the German legislator "refrains from settling the details and must be satisfied [with] formulating the principles and the big guidelines". In that context, judicial consistency and predictability come not from judicial interpretation but from the further elaboration of extensive codes of legal rules and guidance that give expression to the meaning of general statutes.

One way of thinking about general duties in continental legal jurisdictions is as *aspirational*, rather than as *unambiguous*, requirements. For example, the German headline regulatory goal of avoiding endangerment "wherever possible" does not mean that German courts necessarily expect employers to do everything that is *possible* irrespective of cost (Wank 1992,p59). As already noted, this goal- like its equivalent in France- was not judiciable for most of the twentieth century. Rather in civil law systems the emphasis would be on compliance with the extensive legally-based rules and guidance such as those issued by the German BGs. In effect, the goal of safety is defined in terms of meeting specified rules rather than the prevention of harm *per se*.

One striking consequence of how these two legal traditions have addressed OHS is that they have favoured different balances between precision and flexibility in rule design. As Diver (1983) has observed, precise rules help ensure legal consistency but the problem of 'requisite variety' (Ashby 1956) means that as rules become narrower so their number has to increase to match the variety of circumstances that they must meet. Flexible rules, by contrast, can cope with a wide variety of unanticipated circumstances, but they must be accompanied by commonly held interpretative principles to ensure consistent application.

Understood in those terms, the problem besetting the UK's old prescriptive regime under the Factories Acts was one of requisite variety, insofar as the rules failed to provide sufficiently nuanced and consistent coverage across sectors (Demeritt *et al* 2015). For example, powered saws required multiple guards, even if they were carefully protected museum exhibits, while inspectors could not go beyond regulatory requirements to demand the total containment of mechanically-fed wood-cutting machinery, even if this significantly increased safety for only a small cost. Some sectors, such as retail, were left entirely unprotected for decades.

The reform to the UK regime in 1974 solved those problems by replacing prescriptive rules with a general regulatory principle, which permitted explicit trade-offs between safety and cost on a case-by-case basis. That solution was only possible, however, because the UK's common law legal tradition provided a framework for consistent legal interpretation of that qualified goal. Indeed, by providing a common interpretative principle to assess legal compliance in the absence of prescriptive rules, SFAIRP- and more generally 'principles-based' regulation, which OHS regulation has come to exemplify- was very much the product of a common law legal tradition.

By contrast, such principles-based approaches do not fit well with the way that civil law jurisdictions ensure legal consistency. In response to the requisite variety problem, continental OHS regulation has spawned an extensive corpus of rules to meet the extraordinary variety of situation-specific problems that have to be managed in the workplace. For example, it would not be unusual to find in the rule books of the Dutch Labour Catalogues, German BGs, French *Caisses* and Labour Code, very detailed, sector-specific rules and guidance on the use of ladders both outdoors and indoors and in wet and dry conditions. All three countries even have rules that seek to manage the most esoteric of risks such as tiger-taming, with different rules for circuses and zoos. The UK, by contrast, has implemented EU rules on ladders in a very general way and has no rules on tiger-taming; both hazards, however, are covered by the SFAIRP principle.

Legal traditions, therefore, help explain both why the UK could not accept the wording of the EU Framework Directive, as well as how the emphasis of German and French statutes on safety is mitigated by the associated rules, codes and guidance that give legal substance to what is, in effect, an aspirational duty on employers. Another consequence, however, is that just as the German and French duties for safety are aspirational, so is the Dutch qualification that permits cost as a consideration. In the Dutch civil law tradition, that seemingly flexible aspiration is constrained by the corpus of rules, codes and guidance that courts use to assess legal compliance irrespective of the cost-effectiveness of doing more than required. Indeed, as Ale (2005) has observed, while the concept of ALARA- or 'As Low As Reasonably Achievable'- is often used in UK public protection with an analogous meaning to SFAIRP, in the Netherlands ALARA judicially means 'As Large As Regulators Allow'. Therefore, while rules, codes and guidance in France and Germany mitigate aspirational goals of safety, in the Dutch context they mitigate the value of flexible headline regulatory goals.

Cost-benefit trade-offs embodied in corporatist rule-making

While legal traditions help explain the interpretative context of regulatory goals across our four countries, they do not explain how the detailed rules, codes and guidance accommodate the inevitable risk trade-offs between worker safety and cost. We therefore need to examine the institutional context in which these trade-offs are made. That context is not one of apolitical technical deliberation, but instead is marked by various forms of corporatist negotiation between employers, employees and the state.

In the UK, trade-offs between worker safety and the costs of achieving it, are explicitly permitted in law under the 1974 HSWA. However, in addition to transforming the legal landscape, the Act also created a new powerful regulatory agency, the Health and Safety Executive (HSE), overseen by a Commission (since absorbed into the HSE) with tripartite representation from government, business, and unions. Fairman (2007) has persuasively argued that this corporatist setting provides significant political legitimacy for the HSE's risk-based approach to managing trade-offs, as is evidenced by the explicit support of both unions and employers for the approach in a recent government review (Loftsedt 2011).

The detailed rules, codes and guidance that typify the OHS regimes of our other three countries are shaped by their own distinctive corporatist arrangements. In the Netherlands, consultation is a

central feature of the polity (Kickert 2003) and OHS is no exception. Thus the regulations, codes and guidance historically issued by the Ministry for Social Affairs and Employment entailed extensive formal consultation with the 'social partners' through powerful tri-partite corporatist institutions such as the Working Environment Council, and the Social and Economic Council. This corporatist approach was reinforced in 2007 by the replacement of these statutory rules with the non-statutory 'Labour Catalogues' which are elaborated by the social partners on a sectoral basis. These were explicitly introduced as a means of making compliance criteria more flexible and as such they inevitably reflect pragmatic trade-offs on the costs of securing the health and safety of workers.

In the distinctive welfare state contexts of the dual systems of Germany and France, however, trade-offs in rule-making are driven as much, if not more, by containing the *ex post* costs of accidents and ill-health as by containing the *ex ante* costs of prevention. The German case is clearest. Historically, Bismarck supported the BGs having an active role in OHS because of his vociferous opposition to state regulation as an illegitimate interference in private production; not least, as Hennock (2007) has entertainingly noted, because of his dim view of a factory inspection of his own sawmill. In fact, the self-regulatory system of BGs built on the long-standing and much valued freedom of the German guilds- the so-called *Gewerbefreiheit*- to organise economic production without state interference. The assumption was that it would be in the BGs' own interests to formulate safety rules that would optimise the balance between the costs to business of safety measures and insurance premiums. As Hennock (2007, p.99) has argued, "Safety measures whose costs could not be justified by clearly foreseeable savings in compensation payments were ruled out from the beginning". Or put another way, it might be cheaper to pay-out than prevent some kinds of accidents.

These days, BGs make three-way trade-offs between safety and the costs of prevention and compensation through tripartite corporatist negotiations with representatives of employers, employees and the state within 'expert' committees. BG rule-making takes a wide range of forms, from detailed design standards, such as for butchers' meat slicing machines, to general requirements, such as having a guild-style certified 'master' present when taming tigers. Indeed, the same hazards may be regulated differently across different BGs, reflecting the different balance of safety and compensation costs struck in different economic contexts. In recent years, the BGs have shifted away from legally binding accident prevention regulations towards technical standards and best practice guidance, both in response to Single Market pressures as well as to successive BG mergers that have necessitated reconciliation of historically diverse rules. This deregulatory programme, in principle, gives employers greater compliance flexibility, but the extensive guidance still has evidential force.

In France, the central state plays a more formal role in rule-making than in Germany through the state-issued Labour Code. Overseen by the Ministry of Labour, this detailed body of rules is the outcome of corporatist negotiations through national level tripartite bodies and technical committees, such as the *Conseil d'Orientation sur les Conditions de Travail* (COCT). In practice, Ministry representatives are said to proverbially sit at the back of the room while employers and employees hammer out acceptable compromises that balance the costs of protection against marginal increases in safety (Henry 2012; Verdier 2012). Indeed, Henry (2011: p150) suggests that

the State avoids actively participating because the inevitable differential exposures of workers and publics to risk creates potential conflicts with the French constitutional guarantee of equality.

Likewise, the extensive accident prevention rules issued by the *Caisses* are formulated by their Regional Technical Committees, which comprise equal numbers of employer and employee representatives (HSE 1996, Ch.2, p66). These committees have a close interest in the impact of their rules on business costs, jobs and compensation risk, since they also determine contribution rates for establishments and can vary those rates according to performance. Consequently, their rules are likely to balance the costs to business of additional safety measures against the containment of compensation costs as much as against preventing illness and injury.

Making trade-offs through regulatory enforcement and social insurance

Enforcement action by regulatory inspectors and social insurers provides a third way in which the trade-offs between worker safety and cost inherent to OHS regulation are accommodated within our four countries. With its principles-based approach to OHS regulation, trade-offs are acknowledged up-front in UK law, so the challenge is ensuring that they are appropriate and that risk is reduced SFAIRP in every case. In the absence of prescriptive rules, the UK relies on regulatory enforcement by a technically expert inspectorate to judge legal compliance. Inspector discretion, however, is constrained by case-law and best-practice guidance published by the HSE and other bodies such as the British Standards Institute, and the criminal law framework of OHS regulation provides incentives for employers to heed inspector judgment. Black (2002) has characterised this process as a 'regulatory conversation' in which employers and inspectors identify practices that the courts are likely to regard as constituting legal compliance.

By contrast, the more prescriptive approach of our other three countries has favoured greater concentration of regulatory expertise in rule-making processes. However, prescription still poses the requisite variety problem of accommodating situations that are specific to individual workplaces. That problem is mitigated, in part, through cultures of regulatory enforcement and in France and Germany by the activities of social insurance organisations.

In the Netherlands, the 'ruliness' of the OHS regime is mitigated is through a diagnostically Dutch approach to enforcement that Van Waarden (2009) terms 'informal consensualism'. While there is little formal scope for discretion on the application of specific duties, inspection cultures tend to favour pragmatic and non-legal negotiated solutions. This approach has been reinforced by: the framing of OHS regulation as predominantly administrative rather than criminal law (de Gier 1992, p160); the WEA's legal duty on employers and employees to find 'reasonable' solutions and on inspectors to persuade rather than punish (Popma *et al* 2002, p191); and the recent introduction of non-statutory Labour Catalogues. Overall the emphasis on dialogue between inspectors and employers to determine what is reasonable has led to a strong resemblance between the UK and Dutch regimes.

Nevertheless, the tension between the rule-based tradition of civil law and the emphasis on flexibility headlined in the WEA remains. For example, stung by public criticism of its business enforcement in the early 1990s, the Inspectorate's approach became more legalistic and less

flexible (Popma *et al* 2002, p192). On those rare occasions when cases go to trial, courts have interpreted the concept of reasonableness in terms of technical possibility, or as one labour lawyer commented to us, as "geared towards the elimination of risks", rather than in terms of how safe is safe enough. Frustration with that approach led some industry representatives and politicians to advocate a more risk-based numerical definition of 'reasonable', but that has so far has proved elusive in the context of significant sectoral variation in what constitutes acceptable risk (Rimington *et al* 2003).

In contrast to the UK and Netherlands, the state inspectorates in the dual systems of Germany and France are constrained from playing decisive roles in shaping workplace safety practices largely because they spend most of their time enforcing general labour law (eg HSE 1996, Ch.3, p53). Moreover, administrative law- under which most breaches are prosecuted in the absence of serious harm actually occurring- makes for a relatively weak sanctioning regime. In that context, there is some scope for accommodating the inevitable trade-offs between cost and additional safety that are needed on a case-by-case basis (e.g.Wank 1992, 67).

In Germany, for example, discretion by the Länder Inspectorates is facilitated by statutory ordinances that tend to refer to the 'state-of-the-art' and a formidable corpus of BG rules, which may themselves be framed as procedural norms, such as delegating judgements to guild-style 'masters'. The French DIRECTTE inspectors, by contrast, are forced to exercise enforcement discretion because of the Labour Code's mass of inflexible, unqualifiable and sometimes contradictory duties. As one recent official report admitted: 'The Law in practice is, by nature, not fully overlapping with the Law... Full compliance with the law is aspirational because of the complexity of the *Code du Travail*, the number of companies to inspect, the reality of the current practices of some of these companies, the amount of work required to establish some infringements of the law' (DIRECTTE, 2012, p.32/38). Thus, whereas 'regulatory conversations' in the UK are around what trade-offs are legally acceptable, equivalent 'conversations' in France are less consensual and more about which laws to apply and which to ignore. Such implementation gaps are common in France; indeed the centrality of negotiation to making the law 'work' is said by some to be a central characteristic of the French State (Dupuy and Thoenig 1983). It is perhaps no surprise, then, that regulatory action tends to be reactive; as Chaumette (1992, 29) has observed, 'infringement often comes to light only after the occurrence of an accident'.

Given these gaps in regulatory enforcement, the technical inspectorates from German and French social insurers play a significant role in shaping OHS trade-offs in the workplace. In Germany, the BG inspectorates undertake approximately twice the number of inspections and accident investigations as their Länder counterparts (DGUV 2014; Länder annual statistical reports from 2011-2013). While they have powers to prosecute safety violations and to recommend premium increases, BG inspectors tend to see themselves as playing an advisory rather than policing role. Yet insofar as the frequency of BG investigations tends to correlate with the costs of accidents, BG inspectors are driven by insurance logics of compensation risk rather than accident prevention *per se* (HSE 2007 p453). Likewise, insurance premiums are finely calculated to balance the containment of pay-outs against the associated costs to members of achieving that aim (Matchan 1985). Indeed, historically, compensation concerns sometimes inhibited BGs from

recognising the occupational cause of certain diseases, such as some cancers, several decades after other countries such as the UK (HSE 1996, ch.3, 4.3.5).

The French Caisses inspectorates have significantly less power than the German BG inspectorates and consequently see their role as principally advisory. As one inspector put it to us; "We are not there to notice breaches to the labour code. Our only obligation is to suggest solutions to dangerous situations". They can, however, recommend a tripling of premiums and have even spent between 1-2% of their income to subsidise safety improvements in workplaces (HSE 1996, ch.2, 45). The *Caisses* also shape workplace behaviours by defining which diseases and accidents are work-related (see Bruno *et al* 2012), and by setting risk-based contribution rates. Indeed, like the German BGs they have been criticised for delays in recognising certain occupational diseases, such as asbestos-related mesothelioma, which became a major public scandal in France in the 1990s (Rivest 2002, p101). To the extent to that risk-based logics infuse the work of the *Caisses*, their decision-making tends to be driven by 'secondary' insurance concerns- i.e. the 'cost of risk'- as much as by the primary risks of physical harm and ill-health.

5. Discussion and Conclusions

In this paper we have shown how four leading EU-member states differently accommodate the trade-offs between cost and safety that OHS regulation inevitably involves. In contrast to the focus of transatlantic comparisons of risk regulation on the degree of precaution in statutory goals (e.g.Weiner et al. 2010; Vogel 2012), our findings here suggest that looking no further than narrow headline law may too easily mistake ambitious regulatory goals of safety for risk aversion. Divergence in how countries have chosen to transpose the EU Framework Directive into law does not reflect differences in risk appetite or tolerance for trade-offs between safety and cost. Such trade-offs are inevitable and can be seen in each of our countries. Rather differences lie in where those trade-offs are made in each regime and how they are institutionally filtered and shaped through deeply entrenched legal traditions, regulatory norms and practices and the organization of political economy.

Thus the UK's principles-based approach to OHS requires trade-offs to be explicitly sanctioned in the headline law because common law rules of legal literalism would struggle in the absence of such a principle. That approach creates challenges in ensuring that the SFAIRP principle is consistently and correctly applied, but they are mitigated by the activities of an expert inspectorate working within a criminal law framework, case-law and best-practice guidance. By contrast, the more aspirational nature of headline regulatory goals in the civil law systems of our other three countries presents a different set of problems. In those jurisdictions, trade-offs are instead reflected in the elaboration of extensive codes of legal rules and guidance that are proxies for achieving headline regulatory goals, be they the ambitious goals of safety in Germany and France or the more qualified approach of the Netherlands. Their more prescriptive approach sacrifices flexibility for legal precision, but in turn demands rules for each and every workplace situation. Since there could never be sufficient requisite variety in OHS rules to detail the trade-offs appropriate in every case, then trade-offs must be accommodated in other ways, such as through discretionary enforcement within a predominantly administrative law setting.

Beyond highlighting legal tradition and regulatory culture as key drivers of variety in risk regulation, our article goes further to show that while trade-offs are inevitably made between safety and cost in each of our four countries, differences in the organization of corporatist rule-making and compensation have significant consequences for the framing of risk trade-offs. In the UK and Netherlands, where accident prevention is decoupled from social insurance, regulation is centrally concerned with trading the *ex ante* costs of preventing accidents and ill-health against worker safety. In the dual systems of France and Germany, however, regulatory concerns for worker safety are tempered by the logics of their social insurance regimes that trade the *ex ante* costs of preventing accidents and ill-health against *ex post* compensation costs. While reducing *ex post* compensation costs may sometimes be correlated with improvements in worker safety, efforts to manage compensation risk may well sometimes compromise worker safety.

Our analysis, therefore, not only identifies important differences in the ways that European polities govern risks that have hitherto been overlooked by the focus of the comparative risk governance literature on headline law, but also challenges assumptions in the Varieties of Capitalism (VoC) literature about the political economy of worker protection. Superficially, the organisation of OHS regulation might appear to accord with VoC expectations. Thus the UK's principles based approach to OHS regulation is consistent with the expectation that liberal market economies (LMEs) give employers flexibility in organising their labour relations. Similarly, the German delegation of regulatory and compensation functions to legally mandated corporatist mutual trade-associations backed-up by state enforcement is consistent with VoC expectations about coordinated market economies (CMEs), as is the Dutch delegation of the Labour Catalogues to sectoral associations. Likewise, the state-driven negotiations between the social partners both in regulation and compensation in France fit with VoC expectations of a state market economy.

However, our study challenges the implicit expectation of the VoC literature that workers are better protected in C/SMEs than in LMEs, because the latter do not place the same value on workforce stability. Rather a major cleavage in approaches to protection amongst our four countries is related to whether state regulation is driven solely by accident prevention concerns, or additionally, if not principally, by insurance logics of compensation cost containment. Indeed, one major finding of this analysis is that while Germany and France like to portray the Anglo-Saxon practice of explicitly valuing life in regulation as a cultural anathema, those countries simply put a price on life through their social insurance regimes. From that perspective, the Netherlands- despite its co-ordinated market economy- has more in common with the UK than with Germany or France. Thus the social insurance focus on *ex post* compensation in Germany and France may favour getting workers back to work, but the decoupling of compensation from OHS regulation in the Netherlands and the UK may better favour preventing accidents and ill-health in the first place.

At the same time, decoupling in the UK and Netherlands means that *ex post* costs- which are so closely managed in France and Germany- can only be contained through separate action on helping workers back into jobs, crackdowns on benefit fraud and, in the UK, much handwringing over the NHS picking up the costs of a wide set of social ills. The Dutch have more actively sought to contain the escalating costs of disability benefit by making employers liable for the first two

years of payments. However, since employers can privately insure against those costs it remains to be seen how effective that measure will be in reducing disability bills.

In that context, it is perhaps easier to understand the conflict that underpinned the EC's complaint about the UK. If SFAIRP qualifies the liability of employers for workplace injuries and illnesses, then it is not hard to see why continental Commission officials and European trade unions struggled to accept it, given that continental regimes are founded on no-fault liability to ensure *ex post* costs are always met. That concern is not unknown in the UK; for example, anxiety about the implications of SFAIRP for compensation were raised in parliamentary debates on the HSWA in the 1970s, as they were in 2012 when some vestiges of the old regime were expunged from the statute book. In the UK, however, those concerns are relatively residual because the costs of injury and ill-health are socialised through the tax-funded branches of the welfare state.

Our study makes four further contributions. First, our attention to compensation highlights an important limitation in comparative debates about risk governance, which generally have little to say about regimes where regulation is not the State's principle lever of control. Second, and relatedly, our study addresses the relatively under-theorised relationship between the regulatory state and the welfare state (Levi-Faur 2014). The VoC approach, which treats worker protections such as the labour regulation and social insurance compensation as *dependent* variables to be explained by their fit with independent variables such as the industrial strategy of capital, fails to explain the dynamics of OHS regulation. Rather, we argue that the organization of social insurance regimes is a key *independent* variable that acts as a key 'boundary condition' for OHS regulation, shaping both its contours and goals.

Third, our study also shows how the distinctions often drawn between Anglo-Saxon neo-liberalism and the more *dirigiste* and co-ordinated market economies of Europe can reflect legal traditions of common and civil law that substantially predate capitalism. While others have argued that workers are likely to be less well protected in common law than in civil law countries (Botero *et al* 2004; Ahlering and Deakin 2007), our study suggests that there is no reason to suppose that is the case. Comparing like for like, there is no evidence that the UK's common law regime is weaker than the Dutch civil law regime. Rather what is at stake is how those protections are made to work in law. In the UK, without the explicit qualification of the statutory duty to ensure safety through ideas of risk, legal duties of safety would be absolute and consequently very difficult to implement. Such concerns are simply not a problem in civil law jurisdictions where headline regulatory goals are aspirational.

Finally, our analysis also highlights how geographies of legal culture limit the international relevance of flexible, principles-based approaches to regulation. Given the importance of judicial interpretation in the common law tradition, it is perhaps no surprise that it is in Britain and its 'Anglo-Saxon' former colonies that principles-based regulation, of which SFAIRP is a paradigmatic example, has flourished. The OHS case suggests, however, that attempts to transplant principles-based regulation into civil law systems are likely to fail because their separation of powers doctrines favour the mechanical application of precise legal rules rather than the development of interpretive principles that could pit the courts against the legislature. Dutch OHS exemplifies this problem insofar as apparently flexible headline regulatory goals are constrained by very rule-

bound practices of enforcement. Indeed, legal culture may help explain why the UK so often finds itself at odds with the EU over a wide range of regulatory issues- from nuclear power safety to civil aviation- that it thinks would be better served through flexible interpretive principles rather than extensive codified rules. If risk-based approaches to organising regulation have been taken up more enthusiastically in Anglo-Saxon countries than in other advanced economies, our analysis suggests that this is not so much because of principled differences between Anglo-Saxon neo-liberalism and other varieties of capitalism about the morality of valuing life or the need to be more pro-growth or pro-worker or pro-environment. Rather responses to risk-based approaches reflect much deeper institutional differences in the organization of political economy, legal tradition and ideals of the state, with roots pre-dating the birth of capitalism itself.

References

Ahlering, Beth, and Simon Deakin.2007. "Labor Regulation, Corporate Governance, and Legal Origin: A Case of Institutional Complementarity?" *Law & Society Review* 41(4):865-908.

Ale, Ben.2005. "Tolerable or Acceptable, A comparison of risk regulation in the UK and in the Netherlands" *Risk Analysis*, 25(2):231-104.

Ashby, William.1956. *An Introduction to Cybernetics*.

Baldwin, Robert and Terence Daintith.1992. *Harmonization and Hazard. Regulating Workplace Health and Safety in the European Community*. London: Graham and Trotman.

Baldwin, Robert.1992. "United Kingdom" in Robert Baldwin and Terence Daintith.1992.*Op cit.*

Baldwin, Robert and Julia Black.2010. "Really Responsive Risk-Based Regulation". *Law & Policy* 32:181-213

Black, Julia.2002. "Regulatory Conversations". *Journal of Law and Society*. 29:163-196

Botero, Juan., Simeon Djankov, Rafael La Porta, Floriencio Lopez-de-Silanes and Andrei Shleifer.2004. "The Regulation of Labor." *Quarterly Journal of Economics*. 119(4):1339-1382

Breyer, Stephen.1993. *Breaking the Vicious Circle: Toward Effective Risk Regulation*. Cambridge: Harvard University Press.

Brickman, Ronald, Sheila Jasanoff and Thomas Ilgen.1985. *Controlling Chemicals: The Politics of Regulation in Europe and the United States*. Ithaca: Cornell University Press.

Bruno, Anne-Sophie, Eric Geerkens, Nicolas Hatzfeld, Catherine Omnès.2012. Une santé négociée ou les limites de la gestion assurantielle du risque professionnel: la France au regard d'autres pays industrialisés (xix-xx siècles), pp.35-50. In Courtet and Gollac. 2101. *Ibid*.

Chaumette, Patrick.1992. In Robert Baldwin and Terence Daintith. 1992. *Op.cit.*

Courtet, Catherine, Michel Gollac (eds.).2012. *Risques du travail, la santé négociée*, Paris: La Découverte.

Demeritt, David, Henry Rothstein, Anne-Laure Beaussier and Michael Howard.2015. "Mobilizing risk: explaining policy transfer in food and occupational safety regulation in the UK" *Environment and Planning A*.

Diver, Colin.1983. "The Optimal Precision of Administrative Rules" 93 *Yale Law Journal*. 65:71-74.

De Gier, Erik.1992. "The Netherlands" in Robert Baldwin and Terence Daintith, *op.cit.*

Direccte.2012. Le travail vivant des agents de contrôle de l'inspection du travail, Etude menée en Ile-de-France(2009-2012).

DGUV [German Public Accident Insurance].2014. "DGUV Statistics for Practice 2013". Berlin.

Dodds, Anneliese.2006. "The Core Executive's Approach to Regulation: From 'Better Regulation' to 'Risk-Tolerant Deregulation'" *Social Policy & Administration* 40(5):526-542.

Dupuy François, Thoenig Jean-Claude.1983. *Sociologie de l'administration française*, Paris: Armand Colin.

Eurostat.2014. Accidents at work by sex and age, excluding road traffic accidents etc. http://ec.europa.eu/eurostat/web/health/health-safety-work/data/database (last update 15.02.2015)

Fairman, Robyn.2007. "What makes tolerability of risk work? Exploring the limitations of its applicability to other risk fields", in Frederic Bouder, Ragnar Lofstedt and David Slavin (Eds) *The Tolerability of Risk: A New Framework for Risk Management*. London: Earthscan

Graham, John.2010. 'Why Governments Need Guidelines for Risk Assessment and Management.' In *Risk and Regulatory Policy: Improving the Governance of Risk*. Paris: OECD

Guyton, Guy.1999. "A Brief History of Workers' Compensation." *Iowa Orthopaedic Journal* 19:106-110.

Hall, Peter and David Soskice.2001. *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage*. OUP

Henry, Emmanuel.2011. A New Environmental Turn. How the Environment has Come to Rescue of Occupational Health, in Christopher Sellers, Joseph Melling (eds), *Dangerous Trade: Histories of Industrial Hazard Across A Globalizing World*, Philadelphia: Temple University Press.

Henry, Emmanuel.2012. *Débattre publiquement ou gérer discrètement ? La santé au travail comme espace d'expérimentation de nouvelles formes d'intervention publique*, mémoire d'Habilitation à diriger des recherches.

HSE.1989. *Annual Report 1988/89*. London: Health and Safety Executive.

HSE.1996. *The regulation of health and safety in five European Countries.* CRR84/1996. London: Health and Safety Executive.

HSE.2007. *International comparison of (a) techniques used by state bodies to obtain compliance with health and safety law and accountability for administrative and criminal offences and (b) sentences for criminal offences*. RR607. London: Health and Safety Executive

Hennock, Peter.2007. The Origin of the Welfare State in England and Germany. Cambridge:CUP

Huber, Peter.2009. Risk Decisions in German Constitutional and Administrative Law in Gordon Woodman and Diethelm Klippel (eds) *Risk and the Law*. Oxford, NY: Routledge-Cavendish.

Kelman, Steven.1981. *Regulating America, Regulating Sweden*. MIT Press.

Kickert, Walter.2003. "Beneath consensual corporatism: Traditions of governance in the Netherlands". *Public Administration* 81(1):119-140.

Länder Work Safety Inspectorates.2013-2011. Annual Statistical Reports of Bavaria, Baden-Württemberg, Brandenburg, Hamburg, Hessen, Lower Saxony, North-Rhine Westphalia, Rhineland-Palatinate, and Saxony. Available online.

Levi-Faur, David.2014. "The Welfare State: A Regulatory Perspective". *Public Administration.* 92(3):599-614.

Lofstedt, Ragnar.2011. *Reclaiming health and safety for all: An independent review of health and safety legislation*. London: Stationery Office.

Lofstedt, Ragnar.2013. "The Informal European Parliamentary Working Group on Risk- History, Remit, and Future Plans". *Risk Analysis* 33(7):1182-1187.

Lubove, Roy.1986. *The struggle for social security, 1900-1935*. Pittsburgh: University of Pittsburgh Press

Mares, Isabela.2001. 'Firms and the Welfare State: When, Why, and How Does Social Policy Matter to Employers?' in Hall and Soskice *op.cit*.

Matchan, Lothar.1985. "Risikoversicherung statt Gesundheitsschutz für Arbeiter. Zur Entstehung der Unfallversicherungsgesetzgebung im Bismarck-Reich." *Leviathan* (13):420-441.

Merryman, John.1985. *The Civil Law Tradition: An Introduction to the Legal Systems of Western Europe and Latin America*. Stanford University Press

OECD.2010. *Risk and Regulatory Policy: Improving the Governance of Risk.* Pairs: OECD Publishing.

Paul, Regine and Michael Huber.2015. "Risk-based Regulation in Continental Europe? Explaining the Corporatist Turn to Risk in German Work Safety Policies". HowSAFE Working Paper No.2, King's College London

Popma, Jan, Marian Schaapman and Tom Wilthagen.2002. 'The Netherlands: Implementation with Wider Regulatory Reform' in Walters et al.*Op.cit*.

Rimington, John, Jim McQuaid and Vladimir Trbojevic.2003. *Application of Risk Based Strategies to Workers Health and Safety Protection UK Experience*. Dutch Ministry of Social Affairs and Employment

Rivest, Charles.2002. 'France: From a Minimalist Transposition to a Full Scale Reform of the OHS System' in Walters et al.*Op.cit*.

Rothstein, Henry, Michael Huber and George Gaskell.2006. "A Theory of Risk Colonisation: The spiralling regulatory logics of societal and institutional risk". *Economy and Society*, 35(1):91-112

Rothstein, Henry, Olivier Borraz and Michael Huber.2013. "Risk and the Limits of Governance: Exploring varied patterns of risk-based governance across Europe." *Regulation and Governance.* 7(2):215-235.

Sunstein, Cass.2005. *Laws of Fear: Beyond the Precautionary Principle*. Cambridge: Cambridge University Press

Tombs, Steve and David Whyte.2013. "Transcending the deregulation debate? Regulation, risk, and the enforcement of health and safety law in the UK." *Regulation and Governance* 7(1):61-79.

Van Waarden, Frans.2009. "From corporatism to lawyocracy? On liberalization and juridification". *Regulation and Governance*. 3(3):259-286

Verdier, Eric.2012. La gouvernance de la santé au travail: le dialogue social recadré par un paradigme épidémiologique?,pp.103-122. In Courtet and Gollac *Op.Cit*.

Vogel, David.1995. *Trading Up: Consumer and Environmental Regulation in A Global Economy*. Cambridge, MA.: Harvard University Press

Vogel, David.2012. *The Politics of Precaution*. Princeton

Walters, David (ed.).2002. *Regulating Health and Safety Management in the European Union*. P.I.E.-Peter Lang

Wank, Rolf.1992. "Germany" in Robert Baldwin and Terence Daintith. 1992. *Op cit.*

Weiner, Jonathan, Michael Rogers, James Hammitt and Peter Sand.2010. *The Reality of Precaution: Comparing Risk Regulation in the United States and Europe*. Abingdon: Earthscan